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L17 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2004:486395 HCAPLUS  
DOCUMENT NUMBER: 141:42891  
TITLE: Artificial low-density **lipoprotein** carriers  
for transport of substances across the blood-brain  
barrier  
INVENTOR(S): Nelson, Thomas J.; **Quattrone, Alessandro;**  
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FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

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WO 2004050062	A2	20040617	WO 2003-IB5558	20031202
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
US 2004204354	A1	20041014	US 2003-724833	20031202
PRIORITY APPLN. INFO.:			US 2002-430476P	P 20021203

AB This invention relates to a highly efficient artificial low-d. **lipoprotein** (LDL) carrier system for the targeted delivery therapeutic agents across the blood-brain barrier (BBB). In particular, this invention relates to artificial LDL particles comprised of three lipid elements: phosphatidyl choline, fatty-acyl-cholesterol esters, and at least one **apolipoprotein**. The present invention further relates to compns., methods and kits comprising artificial LDL particles for targeting drugs to and across the BBB for the prevention and treatment of brain diseases.

IC ICM A61K009-127  
ICS A61K031-704; A61K047-42; A61K047-28  
CC 63-5 (Pharmaceuticals)  
ST brain delivery LDL carrier **apolipoprotein**

IT **Apolipoproteins**  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)  
(B; low-d. **lipoprotein** carriers for transport of substances across blood-brain barrier)

IT **Apolipoproteins**  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)  
(E3; low-d. **lipoprotein** carriers for transport of substances across blood-brain barrier)

IT **Apolipoproteins**  
RL: PEP (Physical, engineering or chemical process); PYP (Physical

process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);  
USES (Uses)

(E4; low-d. **lipoprotein** carriers for transport of substances  
across blood-brain barrier)

IT **Apolipoproteins**

RL: PEP (Physical, engineering or chemical process); PUR (Purification or  
recovery); PYP (Physical process); THU (Therapeutic use); BIOL (Biological  
study); PREP (Preparation); PROC (Process); USES (Uses)

(E; low-d. **lipoprotein** carriers for transport of substances  
across blood-brain barrier)

IT Drug delivery systems

(carriers; low-d. **lipoprotein** carriers for transport of  
substances across blood-brain barrier)

IT Drug delivery systems

(liposomes; low-d. **lipoprotein** carriers for transport of  
substances across blood-brain barrier)

IT Antibiotics

Antitumor agents

Antiviral agents

Blood-brain barrier

Brain

Fungicides

Particle size

Stability

Transcytosis

(low-d. **lipoprotein** carriers for transport of substances  
across blood-brain barrier)

IT Amino acids, biological studies

Antibodies and Immunoglobulins

Carbohydrates, biological studies

Enzymes, biological studies

Growth factors, animal

Lipids, biological studies

Neurotransmitters

Neurotrophic factors

Peptides, biological studies

Phosphatidylcholines, biological studies

Proteins

RL: PEP (Physical, engineering or chemical process); PYP (Physical  
process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);  
USES (Uses)

(low-d. **lipoprotein** carriers for transport of substances  
across blood-brain barrier)

IT **Lipoproteins**

RL: PEP (Physical, engineering or chemical process); PYP (Physical  
process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);  
USES (Uses)

(low-d.; low-d. **lipoprotein** carriers for transport of  
substances across blood-brain barrier)

IT Neurohormones

RL: PEP (Physical, engineering or chemical process); PYP (Physical  
process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);  
USES (Uses)

(neuromodulators; low-d. **lipoprotein** carriers for transport  
of substances across blood-brain barrier)

IT 701261-26-9P 701261-27-0P

RL: PEP (Physical, engineering or chemical process); PYP (Physical  
process); SPN (Synthetic preparation); THU (Therapeutic use); BIOL  
(Biological study); PREP (Preparation); PROC (Process); USES (Uses)  
(low-d. **lipoprotein** carriers for transport of substances

- across blood-brain barrier)
- IT 303-43-5, Cholesteryl oleate  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)  
(low-d. **lipoprotein** carriers for transport of substances across blood-brain barrier)
- IT 57-88-5, Cholesterol, reactions 60-54-8, Tetracycline 85-44-9, Phthalic anhydride 771-61-9, Pentafluorophenol 1249-81-6, ThioCholesterol 25316-40-9, Adriamycin  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(low-d. **lipoprotein** carriers for transport of substances across blood-brain barrier)
- IT 24951-79-9P, Cholesterol phthalate 701261-24-7P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(low-d. **lipoprotein** carriers for transport of substances across blood-brain barrier)

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FILE 'HCAPLUS' ENTERED AT 17:16:40 ON 13 JAN 2005

L1 29816 SEA ABB=ON ?APOLIPOPROTEIN? OR ?APOE?  
L2 1399 SEA ABB=ON L1 AND (?DRUG?(W)?DELIVER? OR ?CARRIER?)

FILE 'REGISTRY' ENTERED AT 17:17:56 ON 13 JAN 2005

E PHOSPHATIDYLCHOLINE/CN

FILE 'HCAPLUS' ENTERED AT 17:18:13 ON 13 JAN 2005

L3 197 SEA ABB=ON L2 AND (?PHOSPHATIDYLCHOLIN? OR ?PHOSPHOLIPID?)  
L4 3 SEA ABB=ON L3 AND ?LIPID?(W)?CORE?

FILE 'REGISTRY' ENTERED AT 17:18:57 ON 13 JAN 2005

E CHOLESTEROL/CN

L5 1 SEA ABB=ON CHOLESTEROL/CN

FILE 'HCAPLUS' ENTERED AT 17:19:08 ON 13 JAN 2005

L6 143 SEA ABB=ON L3 AND (L5 OR ?CHOLESTEROL?)  
L7 77 SEA ABB=ON L6 AND (?DRUG? OR ?PHARM? OR ?ANTIBIOTIC? OR  
?THERAP?)  
L8 0 SEA ABB=ON L7 AND ?ESTER?(W)?BOND?  
L9 76 SEA ABB=ON L7 AND ?ESTER?  
L10 25 SEA ABB=ON L9 AND LDL  
L11 76 SEA ABB=ON L9 OR L10  
L12 67 SEA ABB=ON L11 AND (PRD<20021203 OR PD<20021203)  
L13 23 SEA ABB=ON L12 AND LDL *23 citi from CA Plus*

FILE 'MEDLINE, BIOSIS, EMBASE, JAPIO, JICST-EPLUS' ENTERED AT 17:21:45 ON  
13 JAN 2005

L14 9 SEA ABB=ON L13  
L15 9 DUP REMOV L14 (0 DUPLICATES REMOVED) *9 citi from other db's*